

ADDITIONAL NOTES ON THE ERIOCAULACEAE. LVI

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PAEPALANTHUS POLYTRICHOIDES Kunth

Additional bibliography: Moldenke, *Phytologia* 30: 279--280. 1975.

It is perhaps worth noting here that Ruhland (1903) cites this species to page "507" of Kunth's work (1841) and to page "499" in Huber's work (1898), but as far as I can determine it is not mentioned on either of those pages.

Recent collectors describe P. polytrichoides as an herb, 20 cm. tall, with the general aspect of a Polytrichum, the flowering heads white. They have found it growing on savannas and campos, wet or slightly moist sand savannas, in white sand, on varzea land, and on quartzite-based savannas, at altitudes of 315--1270 meters, flowering from December to October, fruiting in May, August, and December. Silva reports it as very frequent on wet campos in Minas Gerais, Brazil. My wife and I found it extremely abundant on the blazing-hot Zanderry Savanna in Surinam. Vernacular names for it in that country are "waroekoemakoebia diamaroe" and "woka".

Macbride (1936) cites Henschel s.n. from Peru and gives the overall distribution of the species as only "Amazonian Brazil" and Peru; actually it occurs also in Colombia, Venezuela, and Surinam. Ruhland (1903) cites the same Henschel collection from Peru and, from Brazil, the following: Guedes 598, Huber 1616, and Poeppig 2983 from Pará and Spruce 1503 from Amazonas. The Guedes 598 collection is the type collection of P. maracanus Huber which Huber says (1898) is related to P. supimus Körn. and P. obtusifolius (Steud.) Körn. and of which he notes "Esta elegante especie é bem caracterisada pelos caracteres realçadas na descrição acima pela impressão." Kunth says that P. polytrichoides is related to what we now know as P. lamarckii Kunth and P. fasciculatus (Rottb.) Kunth. The Spruce 1503, cited by Ruhland and by Körnicke, is regarded by me as representing P. subtilis instead. Silveira (1928) cites a Collector undesignated 439 from Maracá Island, Pará, Brazil. Uittien & Heyn (1938) cite Boldingh 3843, B. W. 520 & 1094, Essed s.n., Kuyper 85a, Lanjouw 141 & 332, Pfeiffer s.n., Pulle 46, and Spitzgerber 1128 from Surinam. They note that Boldingh 3843 has its "peduncles sometimes nearly glabrous", as opposed to the rest of the cited specimens which presumably agree with the description given by them of the species as having "peduncles nearly always densely clothed with long, soft, spreading hairs, which are easily destroyed by fire".

Huinink (1966) asserts that P. polytrichoides is a member of the Hyrido-Paspaletum and Van Donselaar (1965) of the Syngonantho-

Xyridion ecologic association.

Körnigke (1863) differentiates his two unnamed varieties as follows:

var. α - "pedunculo pilis arrecto-patentibus vel patentissimis densis persistentibus ornato", citing Poeppig 2983 from Pará and from Colares.

var. β - "pedunculo pilis longissimis irregulariter patentissimis sparsioribus ornato vel glabro", citing Spruce 1503 from Barra along the Amazon of Brazil and Henschel s.n. from Peru. As noted above, I regard the Spruce collection as P. subtilis Miq.

Material of P. polytrichoides has been misidentified and distributed in various herbaria as P. polytrichoides f. villosus Moldenke, P. subtilis Miq., and P. subtilis var. hirsuta Ruhl. On the other hand, the Holt & Blake 463 & 575 and Killip & Smith 30160 & 30162, distributed as P. polytrichoides, are actually P. fasciculatus (Rottb.) Kunth, while G. Gardner 1169, Leprieur 49, and Pickel 2774 are P. lamarekii Kunth, Cowan 39283 and Maguire, Wurdack, & Bunting 36741 are P. polytrichoides var. glaber Moldenke, and Archer 8441, Black 860, Spruce 1503, and G. H. H. Tate 1310 are P. subtilis Miq. The Prance, Pennington, & Murça Pires 1283 & 1284 are intricate mixtures with Syngonanthus bellus Moldenke and S. gracilis var. hirtellus (Steud.) Ruhl.

Additional citations: COLOMBIA: Vaupés: Schultes & Cabrera 19129 (Ss), 19185 (Ss). SURINAM: Boldingh 3843 (Ut--10650), 3889 (Ut--10604); Dirven LP.278 (Ut--309388); Donselaar & Donselaar 407 (Ut--936098); Essed s.n. [Aug. 1914] (Ut--44064A); Florschütz & Florschütz 629 (Ut--80224B); Gongrijp & Stahel 520b (Ut--44060A); Kuyper 85a (Ut--44059A); Lanjouw 111 (Ut--44063A), 332 [photo no. 53] (Ut--44061A); Lanjouw & Lindeman 120 (Ut--17883B), 231 (N, Ut--17875B), 336 (Ut--17880B), 629 (N), 1793 (N, Ut--17879B), 1856 (N, Ut--17889B), 3251 (Ut--17877B); Lindeman 6535 (W--2559781); Moldenke & Moldenke 19581 (B, Bs, Fy, Hk, Hw, Le, Lm, Ok, Rs, Sm, Ss, Ss, Z); Pulle 46 (N, Ut--44065A). PERU: Department undetermined: Henschel s.n. [Peruvia] (Mu). BRAZIL: Amapá: W. A. Egler 1431 [Herb. Mus. Goeldi 24587] (Ml), 47239 (N); Fróes 26749 (N, N); Maguire, Murça Pires, & Maguire 47131 (N). Amazonas: Murça Pires 330 (Be--28285); Spruce s.n. [prope Barra, Prov. Rio Negro, Dec.--Mart. 1850] (S, S). Maranhão: Fróes 34574 (Bm). Mato Grosso: J. G. Kuhlmann 1636 (Ja--47664, N). Minas Gerais: J. B. Silva 557 [Herb. Set. Lag. 694] (Ba). Pará: G. A. Black 873 (Be--29366), 50-8813 (N), 54-16153 (Ca--59926, Hk); Ducke 8010 (Bs), 10500 (Bs), 11679 (Ac), 12034 (Bs), s.n. [Herb. Mus. Goeldi 16259] (Bs); Egler & Raimundo s.n. [Egler 1255; Herb. Mus. Goeldi 24302] (Bm); Fróes 29358a (Be--78896); Kissenberth 3564 (Sm); Murça Pires 4089 (N, Z); Murça Pires & Silva 4716

(N, W—2252822); E. Pereira 5007 (Bd—12470); Poeppig 2983 [Macbride photos 10637] (B—type, N—photo of type, N—photo of type, W—photo of type), s.n. [Rio Pará] (B); Prance, Pennington, & Murça Pires 1282 (N, S), 1283, in part (N), 1284, in part (N); M. Silva 701 [Herb. Brad. 48083] (Ac); Suck s.n. [Herb. Brad. 4620] (Bd). State undetermined: Burchell 1418 (T), 9254 (T); Herb. Bernhardi s.n. (E). MOUNTED ILLUSTRATIONS: notes & drawings by Körnicker (B).

PAEPALANTHUS POLYTRICHOIDES var. DENSUS Moldenke, Phytologia 8: 392—393. 1962.

Bibliography: Moldenke, Phytologia 8: 392—393. 1962; Moldenke, Résumé Suppl. 5: 5. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Biol. Abstr. 42: 1517. 1963; Moldenke, Fifth Summ. 1: 118 (1971) and 2: 956. 1971.

This variety differs from the typical form of the species in having its leaves extremely dense, very closely appressed, and tightly overlapping during anthesis.

Citations: COLOMBIA: Cundinamarca: Cuatrecasas & Jaramillo 25737 (Z—type).

PAEPALANTHUS POLYTRICHOIDES var. GLABER Moldenke in R. E. Schult., Bot. Mus. Leafl. Harvard Univ. 17: 66. 1955.

Bibliography: Moldenke in R. E. Schult., Bot. Mus. Leafl. Harvard Univ. 17: 66. 1955; Moldenke, Résumé 68, 72, 75, 101, & 489. 1959; Moldenke, Résumé Suppl. 12: 3. 1965; Moldenke, Fifth Summ. 1: 118, 125, 130, & 166 (1971) and 2: 956. 1971.

Recent collectors describe this plant as an herb, 7 cm. tall, the leaves gray-green, and the flowering heads white or cream-color. They have found it growing on white sand of campinas and disturbed caatinga, damp sandy soil of road margins, sandy river beaches, rock outcrops, and forming small tussocks on wet sand, at altitudes of 100—130 meters, flowering from January to March and June to September, fruiting in March and July. Maguire and his associates refer to it as "locally occasional on savannas in Amazonas", Venezuela, while Cowan found it to be "frequent on moist open savannas, white sand" in Guyana. Material has been distributed in many herbaria as typical P. polytrichoides Kunth.

Citations: COLOMBIA: Vaupés: Schultes & Cabrera 19180 (Oa—isotype, Oa—isotype, Oa—isotype, Ss—isotype, Z—type). VENEZUELA: Amazonas: Maguire, Wurdack, & Bunting 36741 (N). Bolívar: Maguire, Steyermark, & Maguire 53599 (N). GUYANA: Cowan 39283 (N); Whitton 214 (K). BRAZIL: Amazonas: Prance, Coêlho, Maas, & Pinheiro 11662 (Ac, N), 11667 (Id, Mu, N, S); Prance, Philcox, Rodrigues, Ramos, & Farias 5145 (Id, N, S); Prance, Ramos, Farias, Elias de Paulo, & Albuquerque 10420 (Id, N, S); Prance, Ramos, Farias, & Philcox 4833 (Ac, N, S), 4836 (Ac, N, S). Pará: Ducke 8466 (Bs); Egler & Raimundo s.n. [Egler 1272; Herb. Mus. Goeldi 24319] (Bm). Rondônia: Prance, Forero, Wrigley, Ramos, & Farias

6017 (Ac, N, S).

PAEPALANTHUS POLYTRICHOIDES f. VILLOSUS Moldenke, *Phytologia* 3: 62. 1949.

Bibliography: Moldenke, *Phytologia* 3: 62 & 80. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 67 & 211. 1949; Moldenke, *Alph. List Cit.* 3: 744. 1949; Moldenke, *Phytologia* 4: 202. 1953; Moldenke, *Résumé* 77 & 489. 1959; Moldenke, *Résumé Suppl.* 3: 12 & 13. 1962; Lindeman & Görts-van Rijn in *Pulle & Lanjouw, Fl. Surin.* 1 [Meded. Konink. Inst. Trop. 30, Afd. Trop. Prod. 11]: 333. 1968; Teunissen & Wildschut, *Verh. Konink. Nederl. Akad. Wet. Natuurk.* 59 (2): 23. 1970; Moldenke, *Fifth Summ.* 1: 132 & 166 (1971) and 2: 956. 1971; Teunissen & Wildschut, *Meded. Bot. Mus. Utr.* 341: 23. 1971.

This form differs from the typical form of the species in having its leaves, sheaths, and peduncles very densely villous with long, white, spreading hairs, which, however, wear off in age. It grows in the same soil and exposure to the sun as the typical form.

Lindeman & Görts-van Rijn (1968) cite Lindeman 6556 from Surinam in addition to the type collection. Material has been misidentified and distributed in some herbaria as P. supinus Körn. On the other hand, the J. G. Kuhlmann 1636, distributed (and cited by me in 1953) as this form, is actually typical P. polytrichoides Kunth.

Additional citations: BRAZIL: Amapá: G. A. Black 49-8245 (N); W. A. Egler 1414 [Herb. Mus. Goeldi 24570] (Z).

PAEPALANTHUS PRAEDENSATUS Alv. *Silv., Fl. Mont.* 1: 120—121, pl. 75 II. 1928.

Synonymy: Paepalanthus preadensatus Alv. *Silv., Fl. Mont.* 1: 411, sphalm. 1928. Paepalanibus praedensatus Alv. *Silv., Fl. Mont.* 1: pl. 75 II, sphalm. 1928.

Bibliography: Alv. *Silv., Fl. Mont.* 1: 120—121 & 411, pl. 75 II. 1928; Wangerin in *Just, Bot. Jahresber.* 57 (1): 477. 1937; A. W. Hill, *Ind. Kew. Suppl.* 9: 199. 1938; Worsdell, *Ind. Lond. Suppl.* 2: 184. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 15 & 52. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 87 & 211. 1949; Moldenke, *Résumé* 101, 327, & 489. 1959; Moldenke, *Fifth Summ.* 1: 166 (1971) and 2: 589 & 956. 1971; Moldenke, *Phytologia* 28: 460. 1974.

Illustrations: Alv. *Silv., Fl. Mont.* 1: pl. 75 II. 1928.

The type of this species is A. Silveira 509 from "In campis, sub rupibus et locis umbrosis arenosisque, prope Contagem, in Serra do Riacho do Vento, inter Diamantina et Curvallo", Minas Gerais, Brazil, collected in April, 1908, and deposited in the Silveira herbarium. Silveira (1928) says of the plant "A speciebus affinibus praecipue differt vaginis transverse truncatis".

PAEPALANTHUS PRAEMORSUS Ruhl. in *Engl., Pflanzenreich* 13 (4-30):

172. 1903.

Synonymy: Paepalanthus paraemorsus Ruhl., in herb.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 168, 172, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 15, 52, & 54. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 328, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 591 & 956. 1971.

This species is based on Glaziou 19960 from "Tombador, bei Diamantina" and Glaziou 19966 from "Serra dos Cristaes, bei Diamantina", Minas Gerais, Brazil, flowering in April, and deposited in the herbarium of the Botanisches Museum in Berlin where the former was photographed by Macbride as his type photograph number 10638.

Ruhland (1903) notes that the "Species cum P. succiso Koern., a me non viso, valde affinis esse videtur. Sed huic speciei pedunculi tricostati et bracteeae involucrantae apiculatae ab autore attribuuntur." The P. succisus Körn., reduced by me in my 1971 work to the synonymy of P. praemorsus, obviously actually belongs, rather, in the synonymy of P. succisus Mart.

Citations: BRAZIL: Minas Gerais: Glaziou 19960 [Macbride photos 10638] (B--cotype, N--photo of cotype, N--photo of cotype, W--photo of cotype), 19966 (B--cotype, Z--cotype).

PAEPALANTHUS PRUINOSUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 210. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 210, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 15 & 52. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 956. 1971.

The type of this species was collected by Ernst Heinrich Georg Ule (no. 580) "in Torfsümpfen der Boa Vista, Serra do Mar", Minas Gerais, Brazil, at an altitude of 950 meters, flowering in December, and deposited in the herbarium of the Botanisches Museum in Berlin where it was photographed by Macbride as his type photograph number 10639. Ruhland (1903) says of it "Species foliis et pedunculis insignis. Excellit praetersea bracteis involucrantibus latis, vaginis ore persistenter ciliolatis". It is known thus far only from the original collection.

Citations: BRAZIL: Minas Gerais: Ule 580 [Macbride photos 10639] (B--type, N--photo of type, N--photo of type, W--photo of type, Z--isotype).

PAEPALANTHUS PSEUDOELONGATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 141. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 126, 141, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101

& 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 956. 1971.

The type of this species was collected by Auguste François Marie Glaziou (no. 19961) on the campos at Tombador near Diamantina, Minas Gerais, Brazil, flowering in April, and is deposited in the herbarium of the Botanisches Museum in Berlin where it was photographed by Macbride as his type photograph number 10640. It was originally misidentified and distributed as P. elongatus (Bong.) Körn. In fact, Ruhl (1903) comments that the "Species a P. elongati Koern. speciminibus validioribus primo intuitu vix distinguenda, sed folia multo latiore quam in P. elongato sunt. Analysi florum trimerorum species plane diversa et inter Variabiles Ruhl. collocanda, inter quos valde insignis, cognoscitur." It is known thus far only from the original collection.

Citations: BRAZIL: Minas Gerais: Glaziou 19961 [Macbride photos 10640] (B--type, N--photo of type, N--photo of type, W--photo of type, Z--isotype).

PAEPALANTHUS PSEUDOTORTILIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 155. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 152, 155, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 411. 1928; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 956. 1971.

This species is based on Ule 3508, collected in the Serra do Itatiaia, Minas Gerais, Brazil, in February, 1894, and deposited in the herbarium of the Botanisches Museum in Berlin. The species has also been collected in anthesis in January and Silveira (1928) cites a Collector undesignated 511 collected in "Itatiaia" in 1903. Ruhl (1903) comments that the "Species P. tortili Mart. habitu simillima et affinis, sed capitulis globosis vel fere semiglobosis (nec cylindraco-ovatis) et praesertim bracteis involu- crantibus semper manifestis, earumque forma longe differt".

The F. C. Hoehne 32, distributed as P. pseudotortilis, is actually Syngonanthus caulescens (Poir.) Ruhl.

Citations: BRAZIL: Minas Gerais: Dusén 254 (B, N--photo, S, Z--photo); Strang 369 [Herb. Cent. Pesq. Florest. 1308] (Z); Ule 3508 (B--type, Z--isotype). Rio de Janeiro: Glaziou 5453 (N, S), 6746 (B).

PAEPALANTHUS PUBESCENS Körn. in Mart., Fl. Bras. 3 (1): 384. 1863.

Synonymy: Dupatya pubescens (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya pubescens Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 384, 386, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-

30): 126, 142—143, 284, & 291. 1903; Alv. Silv., Fl. Mont. 1: 34, 79, & 411. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 101, 281, & 489. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Phytologia 20: 306. 1970; Moldenke, Fifth Summ. 1: 166 & 484 (1971) and 2: 956. 1971; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1160 & Ind. 21. 1972; Moldenke, Phytologia 29: 209 & 288. 1974.

The type of this species was collected by Carl Friedrich Philipp von Martius (no. 896) on campos in Minas Gerais, Brazil, and is deposited in the herbarium of the Botanisches Museum in Berlin. The Martius 893 photographed by Macbride in the Munich herbarium apparently is not the type collection. Ruhland (1903) cites, all from Minas Gerais, Glaziou 15528 & 19970, Magalhães Gomes 756, Martius 893 & 896, Schwacke 9224 & 9283, and Sena s.n. [Herb. Schwacke 14476 & 14545].

The species has been found growing in sandy soil and on campos at 1500 meters altitude, flowering from February to April and in June. Silveira (1928) cites A. Silveira 704 from Diamantina, Minas Gerais, collected in 1918. Ruhland (1903) comments that the "Bracteis involucrentibus pallidis etc. statim dignoscitur. Ceterum satis variabilis, praesertim indumento foliorum."

The Martius 893, cited below, is a mixture with Leiothrix curvifolia (Bong.) Ruhl.; in fact, the original determination of the Munich herbarium specimen of this number was "Eriocaulon calocephalon Bong.", but to this Körnicke has appended a note as follows: "No. 893 est Trichocephalus curvifolius Mart. qui non est."

The Angely (1972) reference in the bibliography above is dated "1970" on its title-page, but was not actually issued until 1972.

Material of P. pubescens has been misidentified and distributed in some herbaria as Eriocaulon calocephalon Bong., E. macrocephalum Bong., and E. modestum Kunth.

Citations: BRAZIL: Minas Gerais: Glaziou 22309 (Br, N); Martius 893, in part [Macbride photos 18719] (Mu, N—photo, W—photo), 896 (B—type, Mu—isotype); Mello Barreto 9177 [Herb. Jard. Bot. Belo Horiz. 26594] (N). São Paulo: Eiten & Eiten 5106 (W—2426085); Hemendorff 25 (S). MOUNTED ILLUSTRATIONS: notes & drawings by Körnicke (B).

PAEPALANTHUS PUBESCENS var. CHAPADENSIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 143. 1903.

Synonymy: Paepalanthus pubescens var. chapadensis Alv. Silv. ex Moldenke, Résumé 327, in syn. 1959. Paepalanthus chapadensis

Ruhl. ex Moldenke, Fifth Summ. 2: 579, in syn. 1971 [not P. chapadensis Alv. Silv., 1928].

Bibliography: Ruhl. in Engl., Pflanzreich 13 (4-30): 143 & 291. 1903; Alv. Silv., Fl. Mont. 1: 411. 1928; Moldenke, Known Geogr. Distrib. Ericoc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Résumé Suppl. 1: 120. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 579, 589, & 956. 1971.

This variety is based on Magalhães Gomes 2724 from near Chapada in the Serra da Itatiaia, Minas Gerais, Brazil, flowering in May, and deposited in the herbarium of the Botanisches Museum in Berlin. Silveira (1928) cites A. Silveira 243 from "Itatiaia", collected in 1913.

Citations: BRAZIL: Minas Gerais: Magalhães Gomes 2724 (B--type); Magalhães Gomes & Schwacke 2724 [Herb. Jard. Bot. Rio Jan. 26615] (N--isotype).

PAEPALANTHUS PUBESCENS var. LONGEPILOSUS Alv. Silv., Fl. Mont. 1: 79 [as "longepilosa"]. 1928.

Synonymy: Paepalanthus pubescens var. longepilosa Alv. Silv., Fl. Mont. 1: 79. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 79 & 411. 1928; Moldenke, Known Geogr. Distrib. Ericoc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589. 1971.

This variety differs from the typical form of the species in its leaves being glabrous and its peduncles sparsely long-pilose.

It is based on A. Silveira 498 from "In campis prope Pouso Alto, (Diamantina)", Minas Gerais, Brazil, collected in April, 1908, and deposited in the Silveira herbarium. On page 411 of his work, Silveira (1928) writes the name of the type locality as "Pouso Alto (Serro)". The taxon is known thus far only from the original collection. Obviously much more intensive collecting should be done in the Diamantina region, as well as in the Serra do Cipó and the other mountain chains of Minas Gerais.

PAEPALANTHUS PULCHELLUS Herzog in Fedde, Repert. Spec. Nov. 20: 85--86. 1924.

Bibliography: Herzog in Fedde, Repert. Spec. Nov. 20: 85--86. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 174. 1929; Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 61 [43]. 1932; Moldenke, Known Geogr. Distrib. Ericoc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 956. 1971.

The cotypes of this species were collected by Freiherr Philipp von Lützelburg (no. 15507) at the summit of the Serra das Almas, altitude 1800 meters, and in dry places on the campos, Rio de Contas, altitude 800 meters, Casa de Pedra (no. 11b) and Serra

Sincora (no. 11a), in Bahia, Brazil, and are deposited in the Botanische Staatssammlung herbarium in Munich, where Macbride photographed Lützelburg 11a as his type photograph number 18720. Herzog (1924) cites "no. 11" in his original description of the species, but the letters "a" and "b" have often been added to the Munich specimens of Lützelburg's numbers, as they have been here, when these numbers were represented in Munich by more than a single sheet.

Herzog (1924) comments that "Nach Köpfchen- und Blütenbau wie durch manche andere Charaktere, z. B. die pappusähnliche Behaarung der Scheidermündung dem P. hispidissimus n. sp. mihi nahe verwandt, aber schon durch die Blattform und dem Wuchs deutlich verschieden". The species has been collected in flower and fruit in July.

Citations: BRAZIL: Bahia: Belém 1686 (N, Z); Lützelburg 11a [Macbride photos 18720] (Mu--cotype, N-- photo of cotype, W-- photo of cotype), 11b (Mu--cotype, Z--cotype), 15507 (Mu--cotype).

PAEPALANTHUS PULLUS Körn. in Mart., Fl. Bras. 3 (1): 366--367. 1863.

Synonymy: Dupatya pulla (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya pulla Kuntze apud Durand & Jacks., Ind. Kew., Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 366--367 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 124, 132, 137, 284, & 291. 1903; Alv. Silv., Fl. Mont. 1: 56 & 412. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 101, 281, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 3: 14. 1962; Moldenke, Fifth Summ. 1: 166 & 484 (1971) and 2: 956. 1971; Moldenke, Phytologia 26: 191 (1973), 29: 489 (1974), and 30: 84. 1975.

The type of this species was collected by Georg Heinrich von Langsdorff somewhere in Minas Gerais, Brazil, and is probably deposited in the Botanische Staatssammlung herbarium in Munich. The Paris specimen of Gaudichaud s.n. photographed by the United States National Museum staff photographer is not a type.

Ruhland (1903) comments that the "Species ad antecedentem [P. silveirae Ruhl.] et P. capillarem Koern. proxime accedit."

Citations: BRAZIL: Minas Gerais: Langsdorff s.n. (B--isotype, Ut--375--isotype, Z--isotype). Rio de Janeiro: Gaudichaud s.n. [Rio Janeiro; U. S. Nat. Herb. photo 5887] (N--photo, P).

PAEPALANTHUS PULLUS var. FLAVIDUS Alv. Silv., Fl. Mont. 1: 56 [as "flavida"]. 1928.

Synonymy: Paepalanthus pullus var. flavida Alv. Silv., Fl. Mont. 1: 56. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 56 & 412. 1928; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 956. 1971.

This variety is based on a J. Michaeli collection from "In campis in Serra do Cipó", Minas Gerais, Brazil, collected in August, 1921, and deposited as no. 722 in the Silveira herbarium. It is described by Silveira (1928) as "Folia ut in varietate precedente [var. longepilosus]. Pedunculi pilis longis sparsisque cum brevibus intermixtis pilosi. Bracteae involucrantes flavidae." Thus far the taxon is known only from the original collection.

PAEPALANTHUS PULLUS var. LATIFOLIUS Alv. Silv., Fl. Mont. 1: 56 [as "latifolia"]. 1928.

Synonymy: Paepalanthus pullus var. latifolia Alv. Silv., Fl. Mont. 1: 56. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 56 & 412. 1928; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 956. 1971.

This variety is based on A. Silveira 771 from "In campis, sub rupibus, inter Serro et Diamantina", Minas Gerais, Brazil, collected in June, 1925, and deposited in the Silveira herbarium. On page 412 of his work (1928) Silveira cites the type locality and date as "Serra Geral 1926" — it is not evident whether this is intended as an emendation of the information given in the original discussion on page 56 or refers to another collection under the same herbarium number. He describes the variety as "Caulis ramosus, ramis elongatis usque 10 cm. longis, 1/2 mm. diametro crassis, sparse foliosis. Folia in apice caulis et ramorum densiora, indumento ut in varietatibus precedentibus [vars. longepilosus & flavidus] praedita, 3 mm. diametro in parte latiore. Pedunculi ut in varietatibus precedentibus." The taxon is known thus far only from the original collection.

PAEPALANTHUS PULLUS var. LONGEPILOSUS Alv. Silv., Fl. Mont. 1: 56 [as "longe pilosa"]. 1928.

Synonymy: Paepalanthus pullus var. longe pilosa Alv. Silv., Fl. Mont. 1: 56. 1928. Paepalanthus pullus var. longepilosa Alv. Silv., Fl. Mont. 1: 412. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 56 & 412. 1928; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 956. 1971.

This variety is based on A. Silveira 770 from "In campis areno-

sis, sub rupibus, inter Serro et Diamantina, in Serra Geral", Minas Gerais, Brazil, collected in 1925, and deposited in the Silveira herbarium. On page 412 of his work (1928) Silveira gives the date of collection as "1926" — whether this refers to another later collection under the same number or is intended as a correction of the date given in the original discussion is not evident. He describes the plant as "Folia et pedunculi longis sparsisque ovis brevibus ac patentibus intermixtis pubescentes. Capitula sordide fusca." The variety is known thus far only from the original collection.

PAEPALANTHUS PULLUS var. RAMOSUS Alv. Silv., Fl. Mont. 1: 56 [as "ramosa"]. 1928.

Synonymy: Paepalanthus pullus var. ramosa Alv. Silv., Fl. Mont. 1: 56. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 56 & 412. 1928; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 956. 1971.

This variety is based on A. Silveira 772 from "Sub rupibus, in campis arenosis inter Serro et Diamantina", Minas Gerais, Brazil, collected in June, 1925, and deposited in the Silveira herbarium. On page 412 of his work (1928) Silveira cites the type locality and date as "Serra Geral 1926", but it is not evident if he intends this as an emendation of the information given by him on page 56 of the same work or if he is actually referring to a later collection filed in his herbarium under the same number. He describes the variety as "Caulis valde ramosus, usque 10 cm. et ultra longus, ramis sparse foliosis, 1/2 mm. diametro crassis. Folia 2 mm. diametro lata in latiore parte, indumento ut in varietatibus precedentibus [vars. longepilosus, flavidus, & latifolius] instructa. Pedunculi ut in varietatibus precedentibus." The taxon is known thus far only from the original collection.

PAEPALANTHUS PULVINATUS N. E. Br. in Thiselt.-Dyer, Fl. Trop. Afr. 8: 262—264. 1902.

Bibliography: N. E. Br. in Thiselt.-Dyer, Fl. Trop. Afr. 8: 262—264. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 221—222 & 291. 1903; H. Lecomte, Bull. Soc. Bot. France 55: 595. 1908; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 21 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 111 & 211. 1949; Roberty, Pet. Fl. Ouest-Afric. 366. 1954; Moldenke, Résumé 137 & 489. 1959; Gledhill, Check List Flow. Pl. Sierra Leone 31. 1962; Moldenke, Fifth Summ. 1: 218 (1971) and 2: 956. 1971.

Brown (1902) says of this plant: "This plant is very distinct from all other African species of this Order. The sepals in the flowers of both sexes often appear to be entirely without cilia, but I am unable to determine whether the cilia have fallen away or whether only some of the flowers have ciliate sepals".

The species is based on Borkstadt s.n. from Sierra Leone. Roberty (1954) says of it "Signalé du Sierra-Leone, plante 'en coussinét', de montagne, certainement très rare".

PAEPALANTHUS PUNGENS Griseb., Cat. Pl. Cub. 224. 1866.

Bibliography: Griseb., Cat. Pl. Cub. 224. 1866; Sauv., Fl. Cub. 164. 1871; Sauv., Anal. Acad. Sci. Habana 8: 49. 1871; Gomez de la Maza, Not. Bot. Sist. 49 & 110. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 166-167 & 291. 1903; Britton, Bull. Torrey Bot. Club 44: 33. 1917; A. W. Hill, Ind. Kew. Suppl. 6: 72. 1926; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 51. 1930; Moldenke, N. Am. Fl. 19: 38 & 42. 1937; Moldenke, Phytologia 1: 334 & 354. 1939; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; León, Fl. Cuba 1: 283. 1946; Moldenke, Alph. List Cit. 1: 92 & 185. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 44 & 211. 1949; Moldenke, Résumé 52 & 489. 1949; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 18: 9. 1969; Moldenke, Fifth Summ. 1: 97, 484, & 485 (1971) and 2: 956. 1971; Moldenke, Phytologia 25: 156. 1973.

The Ekman 2341 collection, cited below, is a mixture with P. brittoni Moldenke and P. pungens var. brevifolius Moldenke.

Additional citations: CUBA: Oriente: Ekman 2187 (S), 2341, in part (N, S), 5709 (Er, S), 9121 (S); La Guardia s.n. [López Figueras 1992] (Ha).

PAEPALANTHUS PUNGENS var. BREVIFOLIUS Moldenke, Phytologia 4: 56. 1952.

Bibliography: Moldenke, Phytologia 4: 56. 1952; Moldenke, Fifth Summ. 1: 97 (1971) and 2: 956. 1971; Moldenke, Phytologia 25: 156. 1973.

Citations: CUBA: Oriente: Ekman 2341, in part (N--photo of type, S--type, Z--photo of type).

PAEPALANTHUS RAMOSISSIMUS Alv. Silv., Fl. Mont. 1: 209--210, pl. 138. 1928.

Synonymy: Paepalanthus ramisissimos Alv. Silv., Fl. Mont. 1: pl. 138. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 209--210 & 412, pl. 138. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 956. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 138. 1928.

This species is based on A. Silveira 776 from "In campis secus margines capoeiras, inter Serro et Datas, Serra Geral", Minas Ger-

ais, Brazil, and is deposited in the Silveira herbarium. On page 412 of his work (1928) Silveira cites the place of collection of the type as "prope Serrinha 1926". He comments that the "Species a P. Diffuso Alv. Silv. pedunculis brevioribus et erecto denseque pubescentibus praecipue differt". Thus far it is known only from the original collection.

PAEPALANTHUS RAMOSUS (Wikstr.) Kunth, Enum. Pl. 3: 514. 1841.

Synonymy: Eriocaulon ramosum Wikstr., K. Svensk. Vet. Akad.

Handl. Stockh., ser. 2, 1: 76, pl. 3. 1820. Eriocaulon maximiliani Schrad. ex Roem. & Schult., Mant. 2: 470. 1824 [not E. maximiliani Bong., 1831, nor Kunth, 1841, nor Mart., 1863]. Paepalanthus maximiliani Kunth, Enum. Pl. 3: 515. 1841. Eriocaulon maximiliani (Schrad.?) Bong. ex Kunth, Enum. Pl. 3: 572, in syn. 1841. Eriocaulon ramosum Bong. ex D. Dietr., Syn. Pl. 5: 261. 1852. Paepalanthus ramosus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 330. 1863. Paepalanthus ramosus var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 330—331. 1863. Paepalanthus ramosus var. ♀ Körn. in Mart., Fl. Bras. 3 (1): 331. 1863. Paepalanthus ramosus var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 331. 1863. Paepalanthus ramosus var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 331. 1863. Paepalanthus ramosus var. ♀ Körn. in Mart., Fl. Bras. 3 (1): 331. 1863. Paepalanthus hilairei var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 332. 1863. Dupatya ramosa (Wikstr.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya ramosa Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Eriocaulon maximiliani Schrad. ex Stapf, Ind. Lond. 3: 91. 1930. Actinocephalus ramosus Lutz ex Moldenke, Résumé Suppl. 12: 9, in syn. 1965.

Bibliography: Wikstr., K. Vet. Acad. Handl. Stockh., ser. 2, 1: 76—78, pl. 3. 1820; Wikstr., Trenne Nya Art. Orsäl. Erioc. (repr.) 9—11 & [15], pl. 3. 1821; Roem. & Schult., Mant. 2: 469—470. 1824; Spreng. in L., Syst. Veg., ed. 16, 3: 774. 1826; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 621, pl. 1. 1831; Bong., Ess. Monog. Erioc. 5, [20]—22, & 37—39, pl. 1. 1831; A. St.-Hil., Voy. Distr. Diam. 2: 443—444. 1833; Steud., Nom. Bot., ed. 2, 1: 585 & 586. 1840; Kunth, Enum. Pl. 3: 512—515, 572, 613, 614, & 625. 1841; Mart., Flora 24, Beibl. 2: 35. 1841; Schnitzlein, Iconogr. 1: pl. 46, fig. 4. 1845; D. Dietr., Syn. Pl. 5: 260. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 273, 274, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 330—332, 394, & 507. 1863; Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenhavn. 23: 310. 1871; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 878 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 4, 190, 195, 286, 287, & 291. 1903; Beauverd, Bull. Herb. Boiss., ser. 2, 8: 293—294. 1908; Alv. Silv., Fl. Mont. 1: 200 & 412. 1928; Stapf, Ind. Lond. 3: 91. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in

Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 878 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 32, 36, 39, 44, & 53. 1946; Moldenke, Alph. List Cit. 4: 1203 & 1204. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 202. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 101, 290, 291, 327, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 878 (1960) and imp. 3, 2: 402. 1960; Renné, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 6: 21 & 22 (1963) and 12: 4 & 0. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 149, 159, 161, 174, & 187--190. 1969; Moldenke, Fifth Summ. 1: 166 & 377 (1971) and 2: 505, 510, 584, 589, & 956. 1971; Moldenke, Phytologia 25: 239 (1973), 26: 229 (1972), 28: 456, 460, & 461 (1974), 29: 308, 314, 493, 495, 497, & 499 (1974), and 30: 35, 275, & 278. 1975.

Illustrations: Wikstr., K. Vet. Akad. Handl. Stockh., ser. 2, 1: pl. 3. 1820; Wikstr., Tremme Nye Art. Örtsl. Erioc. (repr.) pl. 3. 1821; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: pl. 1. 1830; Bong., Ess. Monog. Erioc. pl. 1. 1831; Schnitzlein, Iconogr. 1: pl. 46, fig. 4. 1845.

The binomial of Johann Emanuel Wikstrom was definitely published in his paper entitled "Trenna nya arter af Örtslaget Eriocaulon, pp. 9--11, in 1820 [not in "1826" as is sometimes stated], the date confirmed in the "Master Book List" for Bibliografia Huntiana 2: 1971 (1972). A reprint of the paper, apparently published in 1821 (according to the printed date on the back page), but without the illustrations, is preserved in the New York Botanical Garden library.

Paepalanthus ramosus is apparently based on Freyreiss 3 in the Stockholm herbarium. Paepalanthus hilairei var. β is described by Körnicke as "apice caulis sterili brevi; foliis caulinis supra glabris, subtus pilis brevibus patentissimis hirtopubescentibus; foliis ramorum illis similibus vel subtus glabris".

Kunth (1841) comments that this species is "Proxime affinis P. congesto Humb. et Bonpl., sed differt caractere dato". The Humboldt and Bonpland species to which he refers here is now called P. fasciculatus (Rottb.) Körn. and bears no close relationship whatever nor apparent similarity whatever to P. ramosus! He also notes that it is "Praecedenti [P. maximiliani] similis. Specimina nostra, a Sellowio inter Rio Janeiro et Campos lecta, a Wikstroemianis haud differre videntur". In his discussion of the latter species he notes that it "Differt a planta Schraderiana statura altiore, pedunculis longioribus, squamis (bracteis involucrentibus) capitulo multo brevioribus..... Specimina a Sellowio in Serra da Piedade lecta a Bongardianis differunt pedunculis glabris (potius ob pilos delapsos glabratis?)."

It should be noted that the Eriocaulon maximiliani Bong., referred to in the synonymy above, is a synonym of P. hilairei Körn., while P. maximiliani Mart. is in part P. hilairei and in part Synyanthus nitens var. filiformis (Bong.) Ruhl.

Körnicker (1863) divides P. ramosus into six varieties, which, however, he does not name and which seem hardly worth nomenclatural recognition. He describes them as follows: "var. ♂ foliis pilis brevissimis, longo hinc inde intermixto, ciliolatis, ceterum glabris; var. ♀ foliis pilis brevibus patentissimis albis dense ciliatis, ceterum glabris; var. γ foliis pilis longis strictis demum perturbatis praesertim versus basin dense ciliatis, ceterum glabris; var. δ foliis pilis brevibus patentissimis ciliatis, subtus puberulis vel dense pubescentibus [with P. maximiliani Kunth as synonym]; var. ε foliis pilis longis demum perturbatis ciliatis, inferioribus subtus pubescentibus, superioribus subtus arachnoideo-pilosulis; var. ζ foliis pilis longis patentissimis demum perturbatis dense ciliatis, subtus puberulis v. pubescentibus [the typical form]."

For his var. ♂ he cites "in prov. Minarum: Pohl; in Serro Frio: Mart."; for var. ♀ he cites "Mart. Hb. Fl. Bras. n. 482. pro parte; in prov. Bahiensi"; for var. γ he cites "Merckel; in prov. Minarum: Langsdorff; in Serra da Piedade: Sellow n. 1300"; for var. δ he cites "in arenosis; prope Rio de Janeiro: Gomez; Restinga de Taipu: Weddell n. 568; in turfoso-arenosis ad Campos, Cabo Frio: Pohl; in arenosis prope Belmonte: Princ. Neovid."; for var. ε he cites only "Sellow"; and for var. ζ he cites "Freyreiss, Horn, Merckel; inter Macahé et Campos, Junio: Riedel n. 562.; ad Cabo Frio: idem." His variety ♀ is now placed in the synonymy of P. ramosus var. affinis (Bong.) Ruhl.; the others seem to represent only transitory stages or phases of P. ramosus, but not sufficient material is yet available for certain disposition.

In his 1871 work Körnicke cites Warming s.n. from "In Serra da Piedade, Jan., Febr., Majo lect" and describes it as a "Planta 1-3 pedalis; pedunculi 1 1/2 - 3 pollicares".

Recent collectors have encountered P. ramosus in sandy soil on "sandig-moorigen Campos", in "inner restingas", and on campos with Vellozia and "piassava", at 1570 meters altitude, flowering in February, March, June, August, September, and November, and fruiting in February.

Peter Clausen's surname is often spelled "Claussen" on labels in some herbaria and by numerous authors. The label of Glaziou 15516 is inscribed "Rio de Janeiro", but it appears rather certain that the collection was made in Minas Gerais. Silveira (1928) cites A. Silveira 270 from Minas Gerais.

Ruhland (1903) cites from Bahia, Brazil, Wied-Neuwied s.n., and from Minas Gerais P. Clausen s.n., Freyreiss s.n., Gomez s.n., Herb. Reichenbach f. 151820, Horn s.n., Langsdorff s.n., Martius 482 (in part), Merkel s.n., L. Riedel 562, J. E. Pohl s.n., Schwacke 9754, Sellow 1300, and Weddell 568. He comments that "Cl. Koernicke seriem hanc polymorpham praesertim secundum indumenta dividenti assentiri non possum, quamquam specimina singula (cfr. Clausseniana in Serra da Piedade collecta) foliis longissime et dense ciliatis, ceterum glabris valde insignia videntur".

Material of P. ramosus has been misidentified and distributed in some herbaria under the designations Eriocaulon affine Bong., E. affine Mart., E. divaricatum Bong., E. maximiliani Bong., E. maximiliani Mart., E. polyanthum Bong., Paepalanthus affinis Kunth, P. falcifolius Körn., P. hilairei Körn., P. hilairei var. maximiliani Ruhl., P. polyanthum (Bong.) Kunth, and P. ramosus var. affinis (Bong.) Ruhl.

On the other hand, some of the Ackerman s.n. [1832], distributed as P. ramosus, actually is P. clausenianus Körn.

Additional citations: BRAZIL: Bahia: Belém 1693 (Ac, N), 1840 (Ac); Lützelburg 27a (Mu), 27b (Mu). Guanabara: B. Lutz 601 (Ja-24575); Palacios, Balegno, & Cuezzo 4114 (Ja-53979); Rose & Lutz 27 (Ja-52478); Strang 1006 [Castellanos 26308; Herb. Brad. 45560] (Mu). Minas Gerais: P. Clausen 3 (Br, Br, Ml, Mu, N, Qu), 4 (B), 109 (Br, Br), 158 (B), 232 (Ml), 267 (N), 319 (N, Ug), s. n. [Aug.-April 1840] (Br, Br), s. n. [1840] (S), s. n. [Carassa] (Br); Freyreiss 3 (F--photo of type, N--photo of type, S--type, Z--photo of type); Glaziou 15516 (B); Martius s. n. [Serro Frio] (B, Br, Mu); Pereira 2693 [Pabst 3529; Herb. Brad. 3844] (Bd); J. E. Pohl s. n. [in Brasilia] (Mu, Mu, Mu); Pohl & Schott s. n. [Cabo Frio] (Br); Sellow 1300 (B, Br), s. n. (B); Weddell 568 [44] (Br). Rio de Janeiro: Alston & Lutz 34 (Ja-113696); Lucae s. n. [Tijuca] (B); B. Lutz 601 (W-1593788); Martius 482, in part (Br, Br, M, Mu, Mu, N, Z); Mello Mattos s. n. [Herb. Mus. Nac. Rio Jan. 29463] (S), s. n. [Agosto de 1897] (Ja-29463); Segadas-Vianna 4225 (Sm), 4282 (Sm); Segadas-Vianna, Dau, Ormond, Machline, & Lorêdo 153 (Sm), 447 (Sm), 871 (Sm), 946 (Z); Ule 8199 [Herb. Mus. Nac. Rio Jan. 29462] (S), s. n. [8/99] (Ja-29462). State undetermined: Ackerman s. n. [1832] (B); Guillemin 223 (N). MOUNTED ILLUSTRATIONS: Wikstr., K. Vet. Acad. Handl. Stockh., ser. 2, 1: pl. 3. 1821 (N, Z, Z); drawings by Körnische (B, B).

PAEPALANTHUS RAMOSUS var. AFFINIS (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 195. 1903.

Synonymy: Eriocaulon affine Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 621. 1831. Eriocaulon (Paepalanthus) affine Bong. ex Mart., Flora 24, Beibl. 2: 35. 1841. Paepalanthus affinis Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 330. 1863. Paepalanthus affinis var. α Körn. in Mart., Fl. Bras. 3 (1): 330. 1863. Paepalanthus affinis var. β Körn. in Mart., Fl. Bras. 3 (1): 330. 1863. Paepalanthus affinis var. γ Körn. in Mart., Fl. Bras. 3 (1): 330. 1863. Paepalanthus ramosus var. β Körn. in Mart., Fl. Bras. 3 (1): 330 & 331. 1863. Dupatya affinis (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya affinis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Actinocephalus affinis (Bong.) Kunth, in herb. Eriocaulon

affine Mart., in herb.

Bibliography: Bong., Ess. Monog. Erioc. 21. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 621 (1831) and 5: pl. 32. 1839; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 514, 515, 572, & 612. 1841; Mart., Flora 24, Beih. 2: 35. 1841; D. Dietr., Syn. Pl. 5: 261. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 274 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 330—332 & 506. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 877 (1893) and imp. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 195, 284, 289, & 291. 1903; Stapf, Ind. Lond. 3: 90. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 877 (1946) and imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 32, 44, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 101, 285, 323, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 877 (1960) and imp. 3, 2: 401. 1960; Moldenke, Résumé Suppl. 6: 22. 1963; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 492, 577, 589, & 957. 1971; Moldenke, Phytologia 25: 239 (1973), 28: 456 (1974), and 30: 35 & 278. 1975.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 5: pl. 32. 1839.

This variety is apparently based on an L. Riedel collection from Bahia, Brazil, deposited in the Leningrad herbarium, probably one of the two cited by Ruhland (1903) as "auf Wiesen am Meere zwischen Marahu und Rio das Contas (Riedel); bei Ilheos (Derselbe -- blühend im Februar)". Bongard (1831) notes that it "Differt ab E. ramoso, ad quod proxime accedit: statura humiliore; caulibus caespitosis; pedunculis subpubescentibus (nec pilosis); vaginis glabris. Radix fasciculata insignis."

Ruhland (1903) that it "Differt a forma typica caule jam basi et tota longitudine ramoso; ramis elongatis, gracilibus, remote foliosis, 8--10 cm longis, circiter 1,5 mm crassis; foliis longiuscule ciliatis, demum glabris, junioribus subtus pubescentibus, illis ramorum similibus, brevioribus, vix puberulis, 1,5--3 cm longis, medio 2,5 mm latis." In addition to the Riedel collections referred to above, he cites from Espiritu Santo Riedel s.n. [auf Campos bei S. José] and from "Südöstliches Brasilien" Sellow s.n.

Körnicke (1863) describes his three unnamed varieties of P. affine as follows: "var. α foliis (junioribus) utrinque pubescentibus [this is the typical form]; var. β foliis supra glabris, subtus pubescentibus; var. γ foliis utrinque glabris", but Ruhland does not seem to regard them as worthy of nomenclatural recognition. More material is needed before a definite decision should be made as to their validity. For var. α he cites "P. affine Kth. En. III. 514. E. affine....in Brasiliae orientalis arenosis"; for var. β he cites "Majo: Sellow; prope Ilheos et Rio dos Contas, Februario: Riedel"; and for var. γ he cites "Eriocau-

lon (Paepalanthus) affine Mart.....Mart. Hb. Fl. Bras. n. 482. pro parte; in prov. Espiritu Santo campis prope S. José; in pratis maritimis inter Marahu et Rio dos Contas: Riedel". His P. ramosus var. ♂ is described as having the "foliis pilis brevibus patentissimis albis dense siliatis, ceterum glabris" and he cites for it "Mart. Hb. Fl. Bras. n. 482. pro parte; in prov. Bahiensi".

Körnigke's P. hilareii var. ♂ is described by him as "apice caulis sterili brevi; foliis caulinis supra glabris, subtus pilis brevibus patentissimis hirto-pubescentibus; foliis ramorum illis similibus vel subtus glabris" and he bases it on P. Clausen 4 and J. E. Pohl 2033 & 3634 from Minas Gerais, Brazil.

Kunth (1841) notes relative to this taxon "Differt a praecedente [P. ramosus], ad quem proxime accedit: statura humilior, caulibus caespitosis, pedunculis subpubescentibus (nec pilosis), vaginis glabris. Radix fasciculata insignis." This is a verbatim repetition of Bongard's original description (see above).

My wife and I encountered this plant in considerable abundance, about 3 feet tall, in a sandy restinga in Guanabara, Brazil. It has been collected in anthesis in February, June, September, and October. Material has been misidentified and distributed in some herbaria as P. polyanthus var. villosus Beauverd.

On the other hand, the Martius 482 (in part), Strang 1006, Castellanos 26308, and Herb. Brad. 45560, distributed as var. affinis, seem, rather, to represent typical P. ramosus (Wikstr.) Kunth. The Blanchet 5 collection, cited below, is a mixture with P. lamarkii Kunth.

Citations: BRAZIL: Bahia: Glocker s.n. [1842] (N—photo, S, Z—photo). Distrito Federal: Segadas-Vianna 3557 (Ja), 3558 (Z), 3559 (Ja). Guanabara: Moldenke & Moldenke 19600 (B, Fy, N, Rs, Ss); Pabst 7350 [Herb. Brad. 25323] (Lw). Minas Gerais: A. Lutz 1520 (Ja); Martius 482, in part (B). Rio de Janeiro: Duarte & Pereira s.n. [A. P. Duarte 6201] (Bd—15381); Luschnath s.n. [Campo inter San José et Macahé, July 1833] (Br); Strang 190 [Herb. Cent. Pesq. Florest. 474] (Ac). State undetermined: Blanchet 5, in part (S); Sellow s.n. (B, B); Ule s.n. [Herb. Mus. Nac. Rio Jan. 29464] (S). MOUNTED ILLUSTRATIONS: drawings by Körnigke (B).

PAEPAALANTHUS REFLEXUS Alv. Silv., Fl. Mont. 1: 157—158, pl. 99. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 157—158, pl. 99. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Ericoc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 99. 1928.

This species is based on A. Silveira 586 from "In campis prope Lagoão, in serra do Cabral", Minas Gerais, Brazil, collected in

May, 1910, and deposited in the Silveira herbarium. Thus far it is known only from the original collection.

PAEPALANTHUS REFRACTIFOLIUS Alv. Silv., Fl. Mont. 1: 171--172, pl. 110. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 170--172 & 412, pl. 110. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971; Moldenke, Phytologia 30: 56. 1975.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 110. 1928.

This species is based on A. Silveira 814 from "Inter saxa quartzitas, secus viam ex Itacambira et Juramento", Minas Gerais, Brazil, collected in July, 1926, and deposited in the Silveira herbarium. On page 412 of his work (1928) Silveira cites only Itacambira as the type locality. Thus far the species is known only from the original collection. Silveira comments that the "Species in subsections Polyactide Ruhl., bene distincta ob folia veteriora refracta" and, under his discussion of P. macrocaulon Alv. Silv., notes that this "Species a P. refractifolio Alv. Silv. statura, pili acuti et aliis characteribus differt".

PAEPALANTHUS REGALIS Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 393. 1863.

Synonymy: Dupatya regalis (Mart.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya regalis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 393 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 128, 149--150, 284, & 291. 1903; Lützelburg, Estud. Bot. Nordest. 3: 148 & 150. 1923; Alv. Silv., Fl. Mont. 1: 55 & 412. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 51. 1930; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Phytologia 4: 202. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 101, 281, 282, & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 166 & 485 (1971) and 2: 957. 1971; Moldenke, Phytologia 28: 461. 1974.

Cotypes of this species were collected by Carl Friedrich Philipp von Martius "in stratis saxis Itacolumy prope Tejuco [Diamantina] et in serra de S. Antonio", Minas Gerais, Brazil, in May, 1818, and are deposited in the herbarium of the Botanische Staatssammlung in Munich, where a sheet of a single specimen but with both localities given on the label was photographed by Macbride

as his type photograph number 18721.

Ruhland (1903) cites only the original collections and comments that "Ex cl. Koernicke capitula inter omnes generis Paepalanthi (sens. ampl.) maxima; habitu P. (Platycaulo) monticolae Mart. similis. Ego quidem specimen integrum non vidi." It also resembles P. dupatya in habit.

Recent collectors have found the plant growing on sandstone, at 1200 meters altitude, flowering in May.

Citations: BRAZIL: Bahia: Lützelburg 311 (Mu, Z). Minas Gerais: Maguire, Mendes Magalhães, & Maguire 49265 (N, Z); Martius s. n. [prope Tejuco, Mai 1818] (B--cotype, Mu--cotype), s. n. [prope Tejuco et in serra de S. Antonio; Macbride photos 18721] (My--cotype, N--photo of cotype, W--photo of cotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS REGALIS var. RECURVUS Alv. Silv., Fl. Mont. 1: 55
[as "recurva"], pl. 31 & 32. 1928.

Synonymy: Paepalanthus regalis var. recurva Alv. Silv., Fl. Mont. 1: 55, pl. 31 & 32. 1928. Paepalanthus regalis recurvus Alv. Silv. apud Worsdell, Ind. Lond. Suppl. 2: 184. 1941.

Bibliography: Alv. Silv., Fl. Mont. 1: 55 & 412, pl. 31 & 32. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Eric. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 327, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 957. 1971; Moldenke, Phytologia 28: 461. 1974.

This variety is based on two collections by Álvaro Adolpho da Silveira (no. 578) collected "In campis argillosis prope Grão Mogol et in Chapadão inter Itacambira et Juramento", Minas Gerais, Brazil, in July, 1926, and deposited in the Silveira herbarium. On page 412 of his work (1928) Silveira cites Grão Mogol as the type locality, but it still seems that technically the variety was actually based on two collections from different localities but given the same collection number by Silveira. He describes it as having the "Capitulis usque 2,5 cm. latis bilateraliter recurvatis discum verticalem imitantibus a forma typica differt."

PAEPALANTHUS REGELIANUS Körn. in Mart., Fl. Bras. 3 (1): 386--387, pl. 49. 1863.

Synonymy: Dupatya regeliana (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya regeliana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 386--387, 499, & 507, pl. 49. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 128, 148, 284, & 291. 1903; Alv. Silv., Fl. Mont. 1: 65. 1928; Stapf, Ind. Lond. 4: 519. 1930; Durand & Jacks., Ind.

Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 101 & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 166 & 485 (1971) and 2: 957. 1971; Moldenke, Phytologia 26: 238. 1973.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 49. 1863.

The type of this species was collected by Georg Heinrich von Langsdorff somewhere in Minas Gerais, Brazil, and is probably deposited in the Munich herbarium. The species is thus far known only from the original collection.

Citations: MOUNTED ILLUSTRATIONS: Körn. in Mart., Fl. Bras. 3 (1): pl. 49. 1863 (N, Z).

PAEPALANTHUS REPENS (Lam.) Körn. in Mart., Fl. Bras. 3 (1): 371. 1863.

Synonymy: Eriocaulon repens Lam., Encycl. Méth. Bot. 1: 213, pl. 50, fig. 2. 1791 [not E. repens Bong., 1831]. Eriocaulon repens Lam. apud Willd. in L., Sp. Pl., ed. 4, 1: 486. 1797. Paepalanthus repens Körn. in Mart., Fl. Bras. 3 (1): 371. 1863. Paepalanthus domingensis Ruhl. in Urb., Symb. Ant. 1: 485. 1900. Dupatya repens Kuntze apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 177, in syn. 1903. Paepalanthus tuerckheimii Ruhl. in Urb., Symb. Ant. 7: 173. 1912. Paepalanthus dominguensis Ruhl. ex Alv. Silv., Fl. Mont. 1: 405. 1928. Dupatya repens (Lam.) Kuntze ex Moldenke, Fifth Summ. 2: 485, in syn. 1971. Paepalanthus tuerckheimii Urb. ex Moldenke, Fifth Summ. 2: 592, in syn. 1971.

Bibliography: Lam., Encycl. Méth. Bot. 1: 213. 1791; Lam., Tabl. Encycl. Méth. [Illustr. Gen.] 1: pl. 50, fig. 2. 1791; Henckel, Nom. Bot. 68. 1797; Willd. in L., Sp. Pl., ed. 4, 1: 486. 1797; Pers., Syn. Pl. 1: 111. 1805; J. E. Sm. in Rees, Cycl. 13: Eriocaulon. 1809; Pers., Sp. Pl. 1: 284. 1817; Roem. & Schult. in L., Syst. Veg., ed. 15 nova, 2: 866. 1817; Steud., Nom. Bot. Phan., ed. 1, 313. 1821; Poir. in Cuvier, Dict. Sci. Nat. 24: 240. 1822; Spreng. in L., Syst. Veg., ed. 16, 3: 775. 1826; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: pl. 7. 1831; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 569, 572, & 614. 1841; D. Dietr., Syn. Pl. 5: 265. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 273 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 371-373, 504, & 508. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Durand & Schinz, Conspect. Fl. Afr. 5: 504. 1894; Ruhl. in Urb., Symb. Ant. 1: 485. 1900; Ruhl. in Engl., Pflanzenreich 13 (4-30): 22, 125, 137-138, 173, 174, 176-177, 284, 287, 289, & 291. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 131. 1904; Ruhl. in Urb., Symb. Ant. 7: 173. 1912; Prain, Ind. Kew. Suppl. 5, imp. 1, 183. 1921; Alv. Silv., Fl. Mont. 1: 405. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40. 1930; Stapf, Ind. Lond. 3: 91. 1930; Moldenke, N.

Am. Fl. 19: 41--42. 1937; Moldenke, Phytologia 1: 332--335, 351, 353, 354, 356, 362, & 363. 1939; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5, 22, 31, 39, 47, 53, & 55. 1946; Moldenke, Alph. List Cit. 1: 99 & 216 (1946) and 4: 996 & 1012. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 48, 124, 209, 211, & 212. 1949; Moldenke, Phytologia 4: 140--141 (1952) and 4: 207. 1953; Moldenke, Résumé 57, 158, 282, 291, 324, 486, 489, & 490. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Prain, Ind. Kew. Suppl. 5, imp. 1, 183. 1960; Straka, Erdkunde 14: 90. 1960; Tomlinson, Journ. Linn. Soc. Lond. Bot. 59: 170 & 171, fig. 29 & 30. 1964; Moldenke, Résumé Suppl. 12: 11 (1965) and 18: 12. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148, 152, 153, 159--162, 164-169, 184, 187, & 191, fig. 31 L & M & 34 D. 1969; Moldenke, Phytologia 18: 247 (1969) and 20: 422 & 423. 1970; Moldenke, Fifth Summ. 1: 103, 265, & 485 (1971) and 2: 510, 517, 581, 589, 591, 592, 950, & 957. 1971; Moldenke, Phytologia 26: 260--262 (1973) and 30: 20 & 83. 1975.

Illustrations: Lam., Tabl. Encycl. Méth [Illustr. Gen.] 1: pl. 50, fig. 2. 1791; Tomlinson, Journ. Linn. Soc. Lond. Bot. 59: 171, fig. 29 & 30. 1964; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 152 & 164, fig. 31 L & M & 34 D. 1969.

According to Lamarck (1791) and Kunth (1841) the original description of this species is "Surculis foliosis, repentibus; scapis nudis; foliis confertis, ensiformibus, recurvis....Insula Borboniae. -- Caules dense foliosi, parum decumbentes, repentes, 3--5-pollicares. Folia ensiformia, brevia, striata, patentirecurva. Pedunculi terminales et laterales, solitarii, graciles, angulato-striati, 5--6-pollicares, basi vagina arcta pollicaria cincti. Capitula globosa, villosa, albib, magnitudine pisi minoris. Bracteae involucrantes ovales, nitentes, imbricatae."

Körnigke (1863) also says "crescit in insula Borbonia: Commerson", noting that it is similar in appearance to P. intermedia Körn. and P. bongardi Kunth. Ruhland (1903) cites it from "Réunion (Insel): ohne nähere Angaben (Commerson)" and cites no other collections. He comments that "Valde doleo quod specimen hujus speciei non vidi. Nisi schedulae commutatae sunt, magnopere mirandum est, quod species, cui proxime affines in America meridionali distributae sunt, in insula Réunion nec in tota interjacenti Africa omnino nullam speciem hujus generis meo strictiore sensu quidem possidente inveniatur; Bentham et Hooker (Gen. plant. 1. c. 1022) dubitant, quin ad Paepalanthum species pertineat et ad Eriocaulonem eam disponendam censent. Sed si analysis originaria auctore cl. Koernicke herbarii Berolinensis recta est, sine ulla dubitantione Paepalanthus verus est." Smith (1809), however, tells us that "The repens of Lamarck was gathered by Thierry de Menonville in Hispaniola not by Commerson in the isle of Bourbon". Durand & Schinz (1894) still list it as a Réunion plant, while Jackson (1894) cites it to "Ind. occ." Macbride photographed what purports to be an isotype from the Lamarck her-

barium at Copenhagen as his type photograph number 22293. Lamarck calls the species "joncinelle rampante". The illustration in Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: pl. 7, cited by Stapf (1930), actually depicts P. bongardi Kunth and not P. repens.

In view of all these facts, it seems apparent that what has up to now been known as P. domingensis Ruhl. and/or P. tuerckheimii Ruhl. must now be regarded as conspecific with P. repens and take on the latter name. All the information, therefore, given by myself in my 1973 publication under P. domingensis must now be shifted to P. repens.

The H. H. Johnston s.n. [28th September 1888], distributed in some herbaria as P. repens, is actually the type collection of Eriocaulon johnstonii Ruhl.

Paepalanthus repens has been collected in flower in June and in fruit in May and June. Liogier found it growing at 2600 meters altitude, describes it as "Herbácea acaule, creciendo en grupos, flores blancas", and refers to it as common "En pinar, en ladera".

Additional citations: HISPANIOLA: Dominican Republic: Eggers 2216 (Mu); A. H. Liogier 21742 (N, N); Türkheim 3327 (Mu), 3422 (Mu). Haiti: Menonville s.n. [Macbride photos 22293] (N--photo of isotype, W--photo of isotype). MOUNTED ILLUSTRATIONS & CLIPPINGS: Lam., Tabl. Encycl. Méth. 1: pl. 50, fig. 2. 1791 (N, Z); drawings by Körnicke & Ruhland's description (K).

PAEPALANTHUS RESTINGENSIS Moldenke, Phytologia 17: 435-436. 1968.

Bibliography: Moldenke, Phytologia 17: 435 & 436, pl. 1. 1968; Moldenke, Résumé Suppl. 17: 3. 1968; Anon., Biol. Abstr. 50 (8): B.A.S.I.C. S. 141. 1969; Moldenke, Biol. Abstr. 50: 4449. 1969; Rogerson, Rickett, & Becker, Bull. Torrey Bot. Club 96: 387. 1969; Hocking, Excerpt. Bot. A. 16: 39. 1970; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971; Heslop-Harrison, Ind. Kew. Suppl. 15: 99. 1974.

Illustrations: Phytologia 17: 436, pl. 1. 1968.

Citations: BRAZIL: Bahia: Belém & Pinheiro 3181 (N--photo of type, N--drawings of type, Z--type).

PAEPALANTHUS RETUSUS C. Wright ex Sauv., Anal. Acad. Ci. Habana 8: 50. 1871.

Synonymy: Paepalanthus retusus Sauvalle ex Gomez de la Maza, Not. Bot. Sist. 49. 1893.

Bibliography: Sauv., Anal. Acad. Ci. Habana 8: 50. 1871; Sauv., Fl. Cub. 164-165. 1871; Gomez de la Maza, Not. Bot. Sist. 49 & 110. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 126, 140-141, & 291. 1903; Prain, Ind. Kew. Suppl. 4, imp. 1, 170. 1913; Moldenke, N. Am. Fl. 19: 38 & 39. 1937; Moldenke, Phytologia 1: 334, 351, 355, & 363. 1939; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; León, Fl. Cub. 1: 283. 1946; Moldenke, Known Geogr.

Distrib. Erioc. 5 & 53. 1946; Moldenke, Alph. List Cit. 1: 186 (1946) and 4: 1144. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 44 & 211. 1949; Moldenke, Phytologia 4: 203. 1953; Prain, Ind. Kew. Suppl. 4, imp. 2, 170. 1958; Moldenke, Résumé 52 & 489. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 97 (1971) and 2: 957. 1971.

Ruhland (1900, 1903) cites only the type collection of this species, C. Wright 3744. He comments (1900) that "Praecedenti [P. seslerioides] speciei valde affinis, foliis subpersistenter villosis et pedunculis brevissimis, 3-costatis ad illa satis differre videtur. Tamen comparatione quam numerosissimorum specimen probandum est, utrum re vera species distincte an modo illius varietas sit" and (1903) "Speciei praecedenti proxima quamquam habitu alieno".

The León & Victorin 18852, distributed as P. retusus, is actually P. alsinoides var. minus Jennings.

Additional citations: CUBA: Pinar del Río: Ekman 11064 (S), 12806 (S). Province undetermined: C. Wright 3744 (S—isotype).

PAEPALANTHUS RHIZOCEPHALUS Alv. Silv., Fl. Mont. 1: 126—127, pl. 78. 1928.

Synonymy: Paepalanthus rhyzocephalus Alv. Silv., Fl. Mont. 1: pl. 78. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 126—127, pl. 78. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1944; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 328, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 589 & 957. 1971; Moldenke, Phytologia 23: 418 (1972) and 28: 439. 1974.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 78. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 832) "Sub rupibus inter Itacambira et Juramento", Minas Gerais, Brazil, in July, 1926, and is deposited in the Silveira herbarium. He says of it (1928) "Species a P. viridulo Ruhl. pedunculis capillaceis et bracteis involucrentibus obtusis praecipue differt; a P. filoso Ruhl. pedunculis capillaceis haud striatis neque applanatis, pilis supremi bractearum acutis et vaginis altioribus differt."

Hunt calls it a "small white-flowered herb" and found it growing on boulders at the foot of a sheet-conglomeritic sandstone cliff, at 600—1000 meters altitude, flowering in June.

Citations: BRAZIL: Goiás: W. R. Anderson 8188 (Z). Mato Grosso: D. R. Hunt 6002 [Hunt & Ramos 6002] (N).

PAEPALANTHUS RHIZOMATOSUS Alv. Silv., Fl. Mont. 1: 148—149, pl. 92. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 148—149 & 412, pl. 92. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W.

Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101 & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 957. 1971; Moldenke, Phytologia 30: 93. 1975. Illustrations: Alv. Silv., Fl. Mont. 1: pl. 92. 1928.

This species is based on A. Silveira 761 from "In campis prope Baraunas, in Serra Geral", Minas Gerais, Brazil, collected in June, 1925, and deposited in the Silveira herbarium. Silveira (1928) says that this "Species a P. Macrocephalo (Bong.) Koern. caule ramoso, foliis glabris et capitulis majoribus praecipue differt". The illustration is cited as "Tabula XCIII" in the text, but as "Tabula XCII" under the figure. Plate XCII in the text is said to represent P. myriophyllum Alv. Silv., but the illustration of P. myriophyllum is labeled as plate "XCIII", doubtless a typographic error for "XCII". Thus it appears that the two plates (or the two descriptions) have merely had the plate numbers reversed.

Thus far this species is known only from the original collection.

PAEPALANTHUS RIEDELIANUS (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 383. 1863.

Synonymy: Eriocaulon riedelianum Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 630. 1831. Eriocaulon vauthierianum Guill. in Deless., Icon. Select. 3: 57—58 & 67, pl. 95. 1837. Paepalanthus vauthierianus Kunth, Enum. Pl. 3: 500—501. 1841. Eriocaulon vauthierianum Guill. ex D. Dietr., Syn. Pl. 5: 259, sphalm. 1852. Paepalanthus riedelianus Körn. in Mart., Fl. Bras. 3 (1): 383. 1863. Dupatya riedeliana (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Eriocaulon vauthierianus Guill. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879. in syn. 1893. Dupatya riedeliana Kuntze apud Durand. & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Paepalanthus riedelianus var. macrocephala Alv. Silv., Fl. Mont. 1: 412. 1928. Eriocaulon vauthierianum Guill. ex Moldenke, Known Geogr. Distrib. Erioc. 41, in syn. 1946.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 630. 1831; Bong., Ess. Monog. Erioc. 30. 1831; Guill. in Deless., Icon. Select. 3: 57—58 & 67, pl. 85. 1837; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 5: pl. 34. 1839; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 500, 575, 576, 614, & 625. 1841; D. Dietr., Syn. Pl. 5: 259 & 267. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 278, 279, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 383—384 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 126, 143, 284, 287, 288, 291, & 292. 1903; Alv. Silv., Fl. Mont. 1: 412. 1928; Stapf, Ind. Lond. 3: 91. 1930; Durand & Jacks., Ind.

Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, 39, 41, 53, & 55. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 101, 282, 291, 293, 328, 329, & 489. 1959; Moldenke, Résumé Suppl. 1: 22. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 166 & 485 (1971) and 2: 510, 516, 589, 592, & 957. 1971; Moldenke, Phytologia 30: 83. 1975.

Illustrations: Guill. in Deless., Icon. Select. 3: pl. 95. 1837; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 5: pl. 34. 1839.

Bongard's original (1831) description of this species is "acaulis; pilosum; foliis caespitosis pedunculosis subaequantibus erectis lineari-lanceolatis acuminatis canescentibus ciliatis; pedunculis caespitosis incanis.....Habitat in arenosis humidis prope Marahu provinciae Bahiae, ubi legit et benevole mecum communicavit D. Riedel....Flor....4." This description is repeated virtually verbatim by Kunth (1841). For P. vautherianus Kunth says "Valde affinis Eriocaulo Riedeliano Bong., differre videtur praecipue foliis obsolete acutis (nec acuminatis) pedunculisque vix pilosis (nec incanis).....Praecedenti [P. blepharophorus (Bong.) Kunth] proximus, nisi ejus forma?; an stigmata vere indivisa?"

Ruhland (1903) cites the type collection from Bahia and also L. Riedel s.n. [Serro Frio] and Schwacke 13433 from Minas Gerais. He comments that the "Species habitu P. eriophaeo Ruhl. simillima, pedunculis brevibus foliorumque indumento ab affinis longe distincta. Bractae involucrentes specimennum a cl. Schwacke collectorum dense ciliatae, sed dorso fere glabriusculae sunt."

It should be noted that Eriocaulon vauthieri Ruhl. is a synonym of E. koernickei Britten.

Citations: BRAZIL: Minas Gerais: P. Clausen s.n. [Aug.--April 1840] (Br, N, N--photo, Z--photo); Schwacke 13433 (B). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS RIGIDIFOLIUS Alv. Silv., Fl. Mont. 1: 66--67, pl. 38 [as "viridifolius"]. 1928.

Synonymy: Paepalanthus viridifolius Alv. Silv., Fl. Mont. 1: pl. 38. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 66--67 & 412, pl. 38. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 15 & 53. 1946; Moldenke, Phytologia 2: 381. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Moldenke, Résumé 101, 329, & 489. 1959; Moldenke, Fifth Summ. 1: 166 (1971) and 2: 592 & 957. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 38 [as "viridifolius"]. 1928.

This species is based on A. Silveira 701 from "In campis in Chapada do Coupe", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. So far it is known only from the original collection.

PAEPALANTHUS RIGIDULUS Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 15 & 42, pl. 2, fig. 1--7. 1835.

Synonymy: Papulanthus rigidulus Mart. ex Steud., Nom. Bot., ed. 2, 1: 586, in syn. 1840. Eriocaulon rigidulum Mart. ex D. Dietr., Syn. Pl. 5: 260. 1852. Paepalanthus rigidulus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 396. 1863. Dupatya rigidula (Mart.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Eriocaulon rigidulum Steud. ex Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879, in syn. 1893. Dupatya rigidula Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902.

Bibliography: Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 15 & 42, pl. 2, fig. 1--7. 1835; Steud., Nom. Bot., ed. 2, 1: 586 (1840) and ed. 2, 2: 247. 1841; Kunth, Enum. Pl. 3: 510 & 625. 1841; Schnitzl., Iconogr. 1: pl. 46. 1845; D. Dietr., Syn. Pl. 5: 260. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 278 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 296, 396, 397, & 507. 1863; Kuntze, rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 284, 287, & 291. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 483. 1906; Alv. Silv., Fl. Mont. 1: 236 & 412. 1928; Stapf, Ind. Lond. 4: 519. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145 & 483. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 15, 31, 39, & 53. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 87 & 211. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145 & 483. 1959; Moldenke, Résumé 101, 282, 291, & 489. 1959; Moldenke, Résumé Suppl. 1: 18. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 166 & 485 (1971) and 2: 510, 589, 593, & 957. 1971; Moldenke, Phytologia 30: 40, 78, & 111. 1975.

Illustrations: Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): pl. 2, fig. 1--7. 1835; Schnitzl., Iconogr. 1: pl. 46 (in color). 1845.

This species is apparently based on an unnumbered Martius collection from "in subalpinis" at Villa do Rio de Contas, Bahia, Brazil, deposited in the herbarium of the Botanisches Staatssammlung in Munich where it was photographed by Macbride as his type photograph number 18722. The original description is "Caule perbrevis, simplicis, lanuginoso; foliis caespitosis, erectis, linearilanceolatis, acuminatis, nervosis, glabriusculis, vaginas truncatas, integras subquadruplo superantibus, subaequantibus scapos compresso-planos lineares 8--20-fidos; capitulis subglobosis;"

[to be continued]